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Visit of Soviet Minister of Aviation and his Delegation

### 1. Organization

Information in this report seems to strengthen our belief about the organization of the aviation industry in the USSR; that it is under the direction of one ministry, headed by Dementiev, with a relatively small number of echelons of authority between the Minister and the factories which produce the equipment. The Minister's authority does not appear to extend beyond that of furnishing a product design which can be serially reproduced. The decision to proceed with programs comes from higher authority and apparently whatever is required for a program is made available to the Ministry by higher authority. While within the Ministry the decision making process may give the greatest weight to technical and military rather than economic factors, it seems quite clear that the authorities at some level above the ministry do consider economic factors when planning overall defense programs. At least their programs, or in some instances a lack of programs, reflect economic considerations in a large measure. Or, the only other alternative, an air doctrine already adjusted to a more advanced weapons system.

As witness the followings:

First, whereas the U.S. has hundreds of aircraft tankers, the Soviets have no tanker and no tanker fleet and have shown only a minor interest in aerial refueling. Yet their long range bomber force is equipped principally with aircraft of medium range which would normally require refueling in strikes against the U.S.

Second, the Soviets have built only a token heavy bomber force and there are no signs that they intend to increase it in the near future.

Third, the Soviets have yet to produce a supersonic all-weather fighter in any quantities.

Fourth, Soviet military air transport capabilities have progressed little beyond the U.S. C-47 stage, although they have new transports in process the programs are proceeding at a slow pace.

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And finally, the Russian technological base is narrow, and she cannot have all the modern weapons of all types that she may want. This is a serious problem even in the United States where the industrial base is much larger.

## 2. Lead times

OSI has made a serious effort to estimate lead times on Soviet fighter aircraft without too much success. The remarks of Mikoyan and Dementiev are therefore of considerable interest. However, when talking about lead time on the MIG-15, one must take into account several conditions which influenced the lead time, (1) that the MIG-15 engine was a direct copy of the British Nene, (2) that the configuration of the aircraft was a copy of the German Fock-Wolfe, (3) that this day fighter used little equipment that could be identified as electronic and (4) that the aircraft was small, of short range, sub-sonic, and single-place. The MIG-17 and 19 are advanced developments of this basic design but even they could not in any sense be compared to the [REDACTED] CF-105 vis-a-vis lead times as was done. The CF-105 is a Mach-2 (perhaps Mach-3) two place, all-25X1X7 weather fighter. It is 82 feet in length - whereas the MIG-15 is 33 feet. The weight of the CF-105 is not available but these lengths do give some measure for comparison of physical size between the two aircraft.

Lead time on the Soviet Bull (TU-4) medium bomber was also short being only about two years. However, here again it was a matter of making a direct copy of the U.S. B-29's obtained when the aircraft were turned over to them after forced landings in Russia.

The USSR revealed 4 new supersonic jet fighters (Fitter, Fishpot, Faceplate and Fishbed) during June 1956 at the Aviation Day Air Show. While there is little information to indicate the length of time required to produce the prototypes, there is considerable information which shows that only one of these aircraft is in series production, at a modest rate at that. Whether the other designs have been delayed for economic reasons, replaced by more advanced weaponry or plagued by modifications is not clear.

In studying the Bison and B-52 pre-series productions lead times it has been determined that the Bison was brought into production about 1 to 2 years sooner - not the 4 years sooner which has been so widely advertised. There is at least one good reason for the shorter lead time; since Bison rate of production has never been higher than 3 or 4 aircraft per month, the production tooling probably

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is of a lower quality than Boeing's and therefore took much less  
time to build.

### 3. Modifications

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When [REDACTED] asked Dementiev if they were troubled much with modifications during early production, he replied: "No, not very much". This was ofcourse a loaded question and his answer is about what could be expected from someone in a similar position in the U. S. However, the truth is that they have had many modifications in the past, many of them major ones. On several of their programs it is difficult to tell whether the programs have been delayed for economic reasons or by excessive modifications. For example, the Russians boasted a great deal about the CLEAT (TU-114), "the world's largest transport," and promised to exhibit it at the Brussels Fair. It has been seen by the West only once, in November 1957. The same condition applies to the Cooker (TU-110). Yet Dementiev and his delegation told [REDACTED] that the TU-114 would be placed in regular airline service next year (1959) and that "the TU-110 was going through its final flight trials for certification in October of this year" (1958). Economic or modification problems? Or, simply normal lead times.

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### 4. Statistics

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Mikoyan told [REDACTED] that the Soviet design teams worked eight hours a day and six hours on Saturday. This confirms previous information on the subject. Mikoyan indicated that the Russians do not record man-hours per pound nor use the learning curve in manufacturing operations. Although, he added as an after thought that statistics are kept after production is well along. The Russian publication "Organization and Planning of An Aircraft Construction Enterprise" by V. I. TIKHOMIROV indicates that some form of a learning curve is used in their planning and a study of Bison and Crate aircraft production shows that the learning curve is applicable also in actual practice.

### Summary

In general I would be inclined to treat the remarks of the Soviet Minister of Aviation and his delegation when expressing

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views on topics outside their specific field with considerable reserve. Their authority and interests seem to be quite specific and directed only towards the design and development of equipment which will satisfy military requirements - in addition, equipment that reflects all of the merits of a good designer, such as specifying materials and processes that are readily available, simplicity, serviceability and producibility. The decisions to proceed with projects and the economic considerations appear to be resolved at some level higher than the Ministry.

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